AMENDMENTS TO THE CLAIMS

This listing will replace all prior versions, of the claims in the application:

Listing of Claims:

1 - 22. (Cancelled)

23. (**Currently amended**) A control system for a rock crusher having a first feed of material through a rotor and at least one second feed of material in a cascade past the rotator, said control system being ~~adapted~~ configured to control a cascade ratio of said crusher, wherein a portion of material entering the crusher is placed into cascade, and the remainder of said material entering the crusher is supplied to a crusher rotor,

the control system including a processing ~~means~~ arrangement, said processing ~~means~~ arrangement being ~~adapted~~ configured to receive a throughput signal from at least one throughput sensor,

said processing ~~means~~ arrangement also being ~~adapted~~ configured to transmit at least one control signal to at least one control mechanism of the crusher,

wherein at least one control signal or signals are transmitted to each control mechanism to adjust the amount of material entering the crusher rotor to provide a specific cascade ratio for said crusher in response to a randomly variable throughput for said crusher.

24. (Previously presented) A control system as claimed in claim 23 wherein the rock crusher is a vertical shaft impact crusher.

25. (Previously presented) A control system as claimed in claim 23 wherein at least one control signal is transmitted to at least one control mechanic for a rotor gate for the crusher.

26. (Previously presented) A control system as claimed in claim 23 wherein the control signal is transmitted to a control mechanism for a crusher feed-in mechanism.

27. (Previously presented) A control system as claimed in claim 25 wherein the control mechanism has variable settings.

28. (Previously presented) A control system as claimed in claim 23 wherein the cascade ratio is defined as the ratio of amount of material passing through the crusher rotor to the amount of material cascading past the rotor concurrently.

29. (**Currently amended**) A control system as claimed in claim 28 where the cascade ratio is calculated with reference to weight of material passing through the crusher.

30. (**Currently amended**) A control system as claimed in claim 28 where the cascade ratio is calculated with reference to the volume of material passing through the crusher.

31. (Previously presented) A control system as claimed in claim 23 where the amount of material supplied to the crusher varies over time.

32. (**Currently amended**) A control system as claimed in claim 31 wherein the processing ~~means~~ arrangement includes a programmable logic device.

33. (Previously presented) A control system as claimed in claim 31 wherein the programmable logic device is a programmable logic controller.

34. (**Currently amended**) A control system as claimed in claim 31 wherein the programmable logic device is ~~adapted~~ configured to receive specific or target cascade ratio information from a user of the control system.

35. (**Currently amended**) A control system as claimed in claim 31 wherein the programmable logic device is ~~adapted~~ configured to receive a throughput signal from at least one throughput sensor.

36. (Previously presented) A control system as claimed in claim 34 wherein the throughput sensor is provided throughput signal through at least one belt weigher.

37. (**Currently amended**) A control system as claimed in claim 31 wherein the programmable logic controller is ~~adapted~~ configured to transmit at least one control signal to one or more control systems of the rock crusher.

38. (**Currently amended**) A control system as claimed in claim 23 which includes an element which is ~~adapted~~ configured to display information to the user of the crusher.

39. (**Currently amended**) A control system as claimed in claim 38 wherein the element ~~adapted~~ configured to display information is a display panel.

40. (**Currently amended**) A control system as claimed in claim 32 ~~adapted~~ configured to receive a power consumption signal from drive elements or motors associated with the crusher.

41. (Previously presented) A control system as claimed in claim 40 wherein the power consumption signal is a motor current value for motors used to drive the rotor.

42. (Previously presented) A method of calibrating a control system as claimed in claim 23, wherein the steps of:

(i) fixing the settings of the crusher's control mechanism at known positions or values, and

(ii) observing the cascade ratio for the crush at varying throughput values, and

(iii) resetting the settings of the crusher's control mechanism to match the actual cascade ratio observed.

43. (**Currently amended**) A control software for a rock crusher control system, wherein a portion of material entering the crusher is placed into a cascade via a cascade feed and the remainder of said material entering the crusher is supplied to the crusher rotor via a crusher rotor feed, said ~~software being said~~ control software being stored as a machine readable program code on a computer readable medium so as to be executable by a computer, and ~~adapted~~ configured to execute the steps of;

(i) receiving target cascade ratio information, and

(ii) receiving a throughput signal indicative of the current crusher throughput, and.

(iii) determining changes to be made in the settings of the rock crusher's control mechanism or mechanisms to achieve the target cascade ratio, and

(iv) transmitting at least one control signal to a control mechanism to implement the changes required in the settings of said control mechanism or mechanisms.